Trpv2 Cas9-KO Strategy

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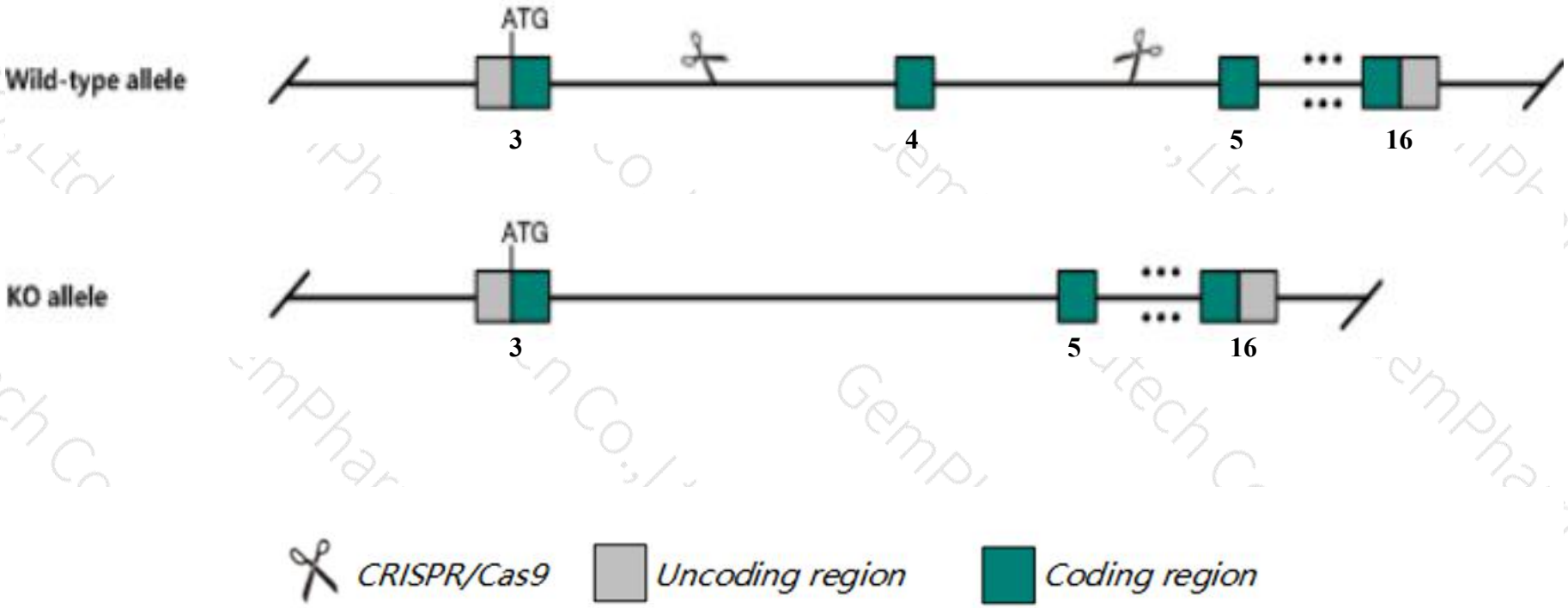
Project Overview

Project Name	***Trpv2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trpv2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Trpv2* gene has 5 transcripts. According to the structure of *Trpv2* gene, exon4 of *Trpv2-201*(ENSMUST00000018651.13) transcript is recommended as the knockout region.The region contains 134bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Trpv2* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

Notice

➢ According to the existing MGI data,mice homozygous for a knock-out allele exhibit impaired macrophage migration, binding, and phagocytosis with increased susceptiblity and mortality following bacterial infection.

➢ The *Trpv2* gene is located on the Chr11. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.

➢ This strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes,all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

集萃药康 GemPharmatech

Trpv2 transient receptor potential cation channel, subfamily V, member 2 [Mus musculus (house mouse)]

Gene ID: 22368, updated on 13-Mar-2020

Summary

Official Symbol	Trpv2 provided by MGI
Official Full Name	transient receptor potential cation channel, subfamily V, member 2 provided by MGI
Primary source	MGI:MGI:1341836
See related	Ensembl:ENSMUSG00000018507
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GRC, OTRPC2, VRL-1, Vrl1
Expression	Broad expression in thymus adult (RPKM 24.2), placenta adult (RPKM 13.8) and 21 other tissues See more
Orthologs	human all

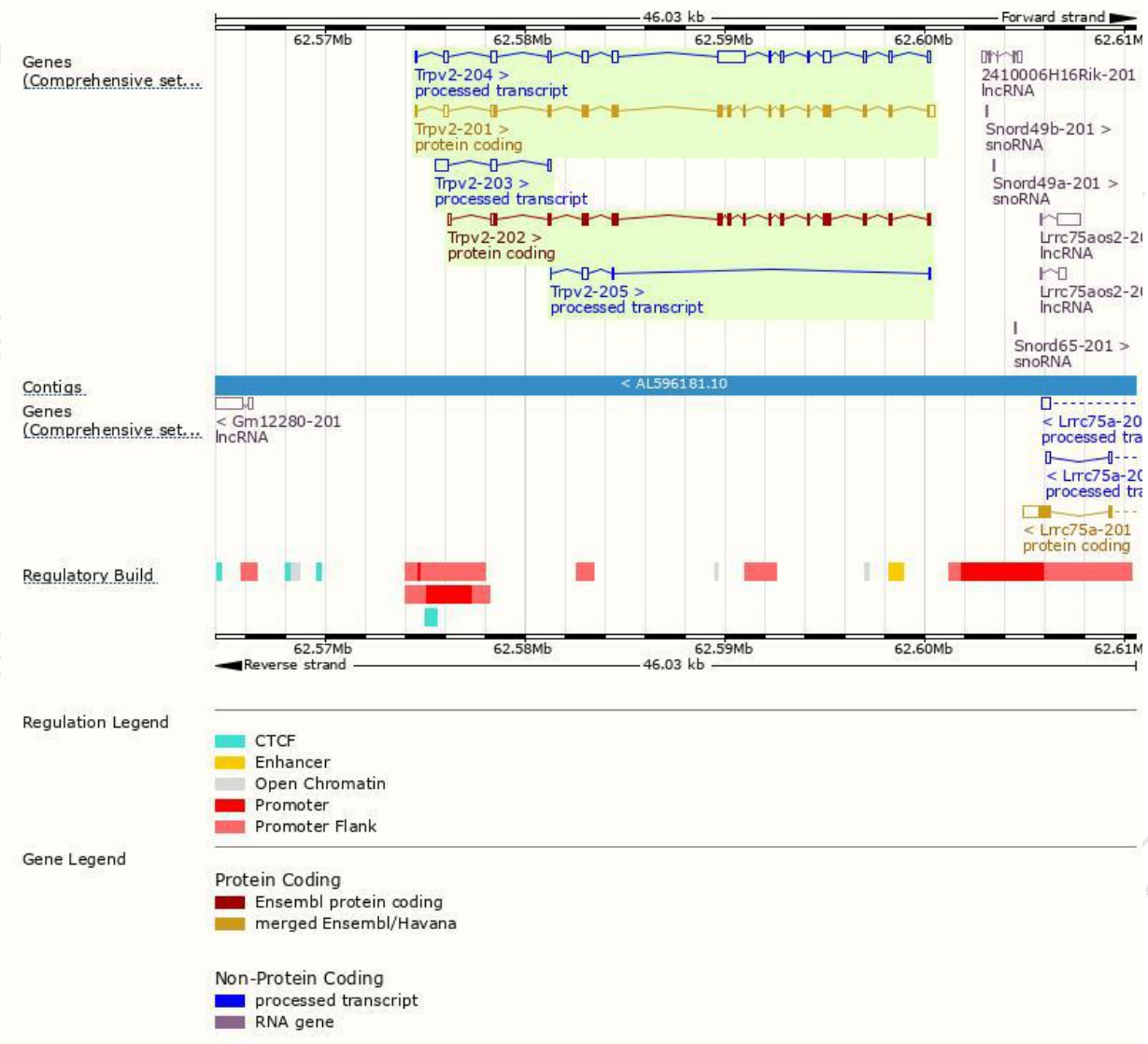
Transcript information（Ensembl）

The gene has 5 transcripts,all transcripts are shown below:

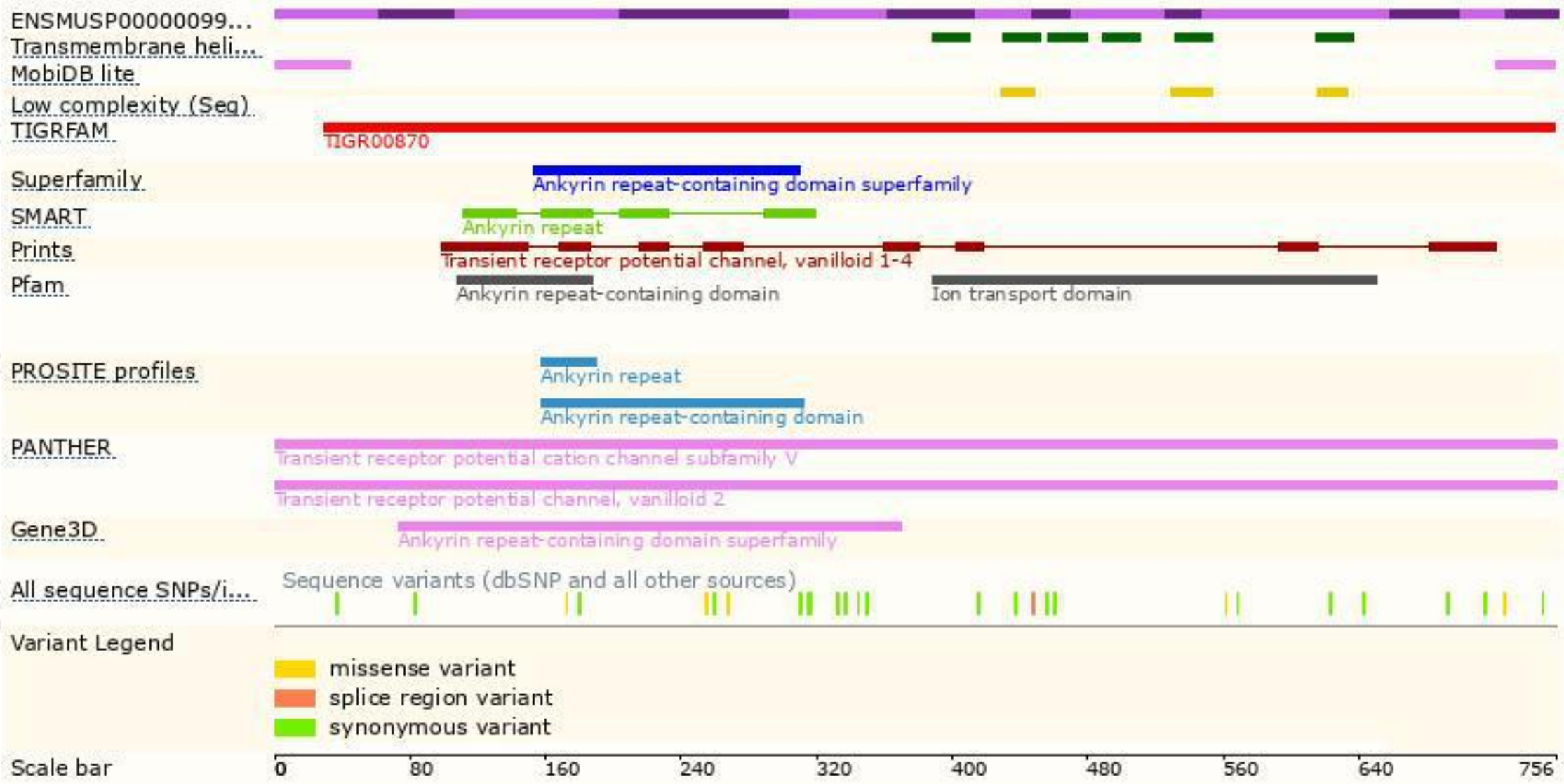
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trpv2-201	ENSMUST00000018651.13	2909	756aa	Protein coding	CCDS24827	Q9WTR1	TSL:2 GENCODE basic APPRIS P1
Trpv2-202	ENSMUST00000102643.1	2650	756aa	Protein coding	CCDS24827	Q9WTR1	TSL:5 GENCODE basic APPRIS P1
Trpv2-204	ENSMUST00000151195.7	3671	No protein	Processed transcript	-	-	TSL:1
Trpv2-203	ENSMUST00000130569.1	1005	No protein	Processed transcript	-	-	TSL:2
Trpv2-205	ENSMUST00000153486.1	438	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Trpv2-201* transcript,the transcription is shown below:

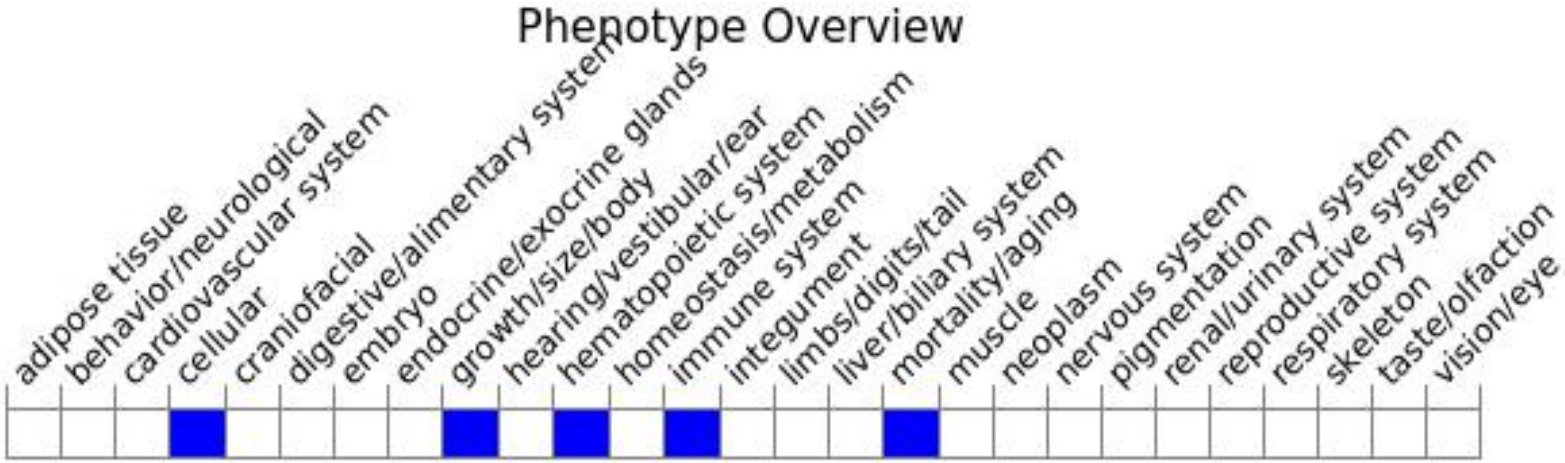
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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If you have any questions, you are welcome to inquire.

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